

## VASCULAR PLANTS OF THE RIVERINE PLAIN OF NEW SOUTH WALES—SUPPLEMENTARY LIST

W. E. MULHAM AND D. E. JONES

(Accepted for publication 26.2.1981)

### ABSTRACT

Mulham, W. E. (CSIRO Division of Land Resources Management, Riverina Laboratory, Deniliquin, Australia 2710) and Jones, D. E. (Pastures Protection Board, P.O. Box 61, Deniliquin, Australia 2710) 1981. *Vascular Plants of the Riverine Plain of New South Wales—Supplementary List*. *Telopea* 2 (2): 197-213.—A list of plants collected on the Riverine Plain of semi-arid southern New South Wales is presented. The list supplements the publication of Leigh and Mulham (*Telopea* 1 (4): 1977) in which all plants recorded prior to that date, and for which voucher specimens were available, were enumerated. Where known, notes on the distribution, habitat and forage value of the plants are included.

### INTRODUCTION

In 1977 Leigh and Mulham presented a list of all plants collected on the Riverine Plain to that date and for which voucher specimens were known to be held. Since that time further collections, and a more systematic search for specimens held at the National Herbarium of New South Wales, have resulted in the listing of a further 203 plants. These are presented below, together with notes on their distribution and habitat; notes on their pastoral use are also included where known. The majority of the plants have been identified by staff of the National Herbarium. As in Leigh and Mulham (1977) the entries labelled 'NSW' refer to collections held in the National Herbarium of N.S.W.; for those labelled 'Den, NSW' there are collections from the Riverine Plain in the CSIRO Riverina Laboratory and the National Herbarium of N.S.W. The remainder are known to be held at the Herbarium Australiense, Canberra, or the National Herbarium of Victoria, Melbourne; such specimens are, in the list, followed by the abbreviations CANB and MEL respectively.

Observations and records made since the original list was published have resulted in additional data on the distribution, habitat and frequency of occurrence of many of the taxa included in that list. However, such information is not incorporated in this publication; should it be required, it can be obtained from the senior author.

Recent revisions will necessitate name changes for a number of the taxa included in the original list, the most significant of which is the treatment of several of the Chenopodiaceae (principally the Australian species formerly referred to *Bassia*) by Scott (1978). In the present list the recently superseded name is inserted, in parenthesis, after the currently accepted name.

The order of presentation follows that of the original list. Generic headings are included only when a particular genus was not included in that list.

#### Deletions from original list

Because of misdeterminations, or revisions, the following should be deleted from the 1977 list: *Scirpus inundatus* (Cyperaceae), *Ranunculus papulentus* (Ranunculaceae) and *Helipterum diffusum* (Asteraceae).

## ACKNOWLEDGEMENTS

We gratefully acknowledge the co-operation of the Director and staff of the National Herbarium of New South Wales in providing the botanical determinations, allowing access to the Herbarium specimens and organizing the publication of this list. Ms E. M. Canning, National Botanic Gardens, Canberra, supplied a list of plants collected in the Booligal area and not included in the earlier publication. We are grateful, too, to colleagues who drew our attention to taxa which had not been listed previously and for which voucher specimens are available.

## REFERENCES

- Aston, Helen I. (1973). 'Aquatic Plants of Australia.' (Melbourne University Press: Melbourne.)
- Leigh, J. H., and Mulham, W. E. (1977). Vascular Plants of the Riverine Plain of New South Wales with notes on Distribution and Pastoral Use. *Telopea* 1 (4): 225-291.
- Scott, A. J. (1978). A revision of the Camphorosmoideae (Chenopodiaceae). *Feddes Repert.* 89: 101-119.
- Willis, J. H. (1970). 'A Handbook to Plants in Victoria.' Vol. 1. 'Ferns, Conifers and Monocotyledons.' Second Edition. (Melbourne University Press: Melbourne.)

**PTERIDOPHYTA****ISOËTACEAE***Isoëtes* L.

- I. muelleri* A. Br.: Recorded only from a damp area at "The Rocks", between Tocumwal and Berrigan. Den\*, NSW.

**OPHIOGLOSSACEAE***Ophioglossum* L.

- O. lusitanicum* L. ssp. *coriaceum* Clausen: "Adder's Tongue"†. Small colonies occur in black box and river red gum woodlands in southern districts. Den, NSW.

**PTERIDACEAE***Pteris* L.

- P. tremula* R. Br.: "Tender Brake". Only known occurrence at the base of a rock overhang bordering a deep pool at "The Rocks", between Tocumwal and Berrigan. Den, NSW.

**ADIANTACEAE***Cheilanthes* Swartz

- C. sieberi* Kze.: "Mulga Fern". Scattered plants in shaded areas in numerous southern woodlands. Den.

**ANGIOSPERMAE****MONOCOTYLEDONEAE****POTAMOGETONACEAE**

- Potamogeton crispus* L.: "Curly Pondweed". Occurs in permanent streams and irrigation channels. NSW.
- P. ochreatus* Raoul: "Blunt Pondweed". In streams, lakes and irrigation channels. NSW.
- P. pectinatus* L.: "Sago Pondweed". Recorded from Lake Wyangan (near Griffith), and from the Murray River downstream of Swan Hill. NSW.
- P. perfoliatus* L.: "Clasped Pondweed". Records restricted to irrigation channels in the Murrumbidgee Irrigation Areas. NSW.

**RUPPIACEAE***Ruppia* L.

- R. maritima* L. sens. lat.: "Sea Tassel". Recorded only from a ground tank at the Black Swamp near Wanganella, growing there in water pumped from underground. Den.
- R. megacarpa* R. Mason: One record only, from a small lake north of Swan Hill. NSW.

\* Den—CSIRO Riverina Laboratory, Deniliquin.

† Common names are the same as those used in Cunningham, Mulham, Milthorpe & Leigh (in press), 'Plants of Western New South Wales'; these may differ from the usage at the National Herbarium of N.S.W.

## ZANICHELLIACEAE

*Lepilaena* Drumm. ex Harv.

- L. australis* Drumm. ex Harv.: "Australian Water-mat". Only one collection, from a small ephemeral pool at "The Rocks", between Tocumwal and Berrigan. Den, NSW.

## NAJADACEAE

*Najas* L.

- N. marina* L.: "Prickly Waternymph". Recorded only from Lake Wyangan, near Griffith. NSW.
- N. tenuifolia* R. Br.: "Waternymph". Occasional occurrences in pools, dams and irrigation drainage channels. Den, NSW.

## JUNCAGINACEAE

- Triglochin dubia* R. Br.: Rather uncommon, recorded only from swamp areas in the south. Den.
- T. hexagona* J. M. Black: "Six-point Arrowgrass". Only one collection, from "The Rocks", between Tocumwal and Berrigan. Den, NSW.

## ALISMATACEAE

*Sagittaria* L.

- \**S. graminea* Michx. var. *weatherbiana* (Fernald) Bogin: Localized infestation recorded in an irrigation channel near Deniliquin. Den, NSW.
- \**S. montevidensis* Cham. et Schldl.: "Arrowhead". Recorded in drainage channels and rice fields in the Murrumbidgee Irrigation Areas. Also recorded from the Deniliquin district. Den, NSW.
- \**S. sagittifolia* L. Recorded from the Griffith area. NSW.

## HYDROCHARITACEAE

*Egeria* Planch.

- \**E. densa* Planch.: "Leafy Elodea". Recorded in irrigation channels and streams in southern districts. Den.

*Hydrilla* Rich.

- H. verticillata* (L. f.) Royle: "Water Thyme". Aston (1973) notes that this plant was recorded in the Murray River near Swan Hill late last century; no collections appear to have been made since in the area covered in this list. MEL.

*Vallisneria* L.

- V. gigantea* Graebner (*V. spiralis* auct. austral. non L.): "Eel-weed". In streams, swamps, lakes and irrigation channels. Den.

## POACEAE

- Amphibromus whitei* C. E. Hubbard: Recorded from the Hay and Berrigan districts but possibly widespread and confused with the taller though superficially similar *A. neesii*. NSW.
- \**Briza maxima* L.: "Quaking Grass". Occurs in shady sites in southern districts. More prevalent in years of good cool-season rainfall, though never abundant. Den.

\* An asterisk indicates that the species is naturalized and not native to Australia; see Leigh & Mulham (1977: 226).



- Chloris ventricosa* R. Br.: "Tall Windmill Grass". One collection from near Booligal. CANB.
- Danthonia auriculata* J. M. Black: "Lobed Wallaby Grass". Recorded in the Jerilderie district in 1880. Possibly occurs occasionally along the eastern margin of the Riverine Plain. NSW.
- \**Digitaria ciliaris* (Retz.) Kocl.: "Summer Grass". One collection, from the Jerilderie district. Very similar to *D. sanguinalis* and therefore probably confused with that species at times. NSW.

*Eleusine* Gaertn.

- \**E. tristachya* (Lamk.) Lamk.: "Goose Grass." Occasional occurrences in southern districts, usually around areas of habitation. Den, NSW.
- Eragrostis desertorum* Domin: Recorded only from a regeneration area near Trida, in the north of the Plain. NSW.
- Eriochloa australiensis* Stapf ex Thell.: "Australian Cup-grass". Occurs in southern districts. Closely resembles *E. pseudoacrotricha*. Den, NSW.
- Glyceria australis* C. E. Hubbard: "Manna Grass". Not uncommon in wet areas in southern districts. Has some value as forage. Den, NSW.
- \**Panicum capillare* L. var. *capillare*: "Witchgrass". Recorded only from the Narrandera district. NSW.  
Var. *occidentale* Rydb.: Collections have been made in the Griffith and Thule-Womboota districts. As with var. *capillare* this grass has little pastoral value. NSW.
- \**P. laevifolium* Hack. var. *contractum* Pilger: Uncommon; occurs as isolated plants in occasional years. Appears to be palatable to stock. Den.
- \**Parapholis strigosa* (Dumort.) C. E. Hubbard: "Sca Hard-grass". Occasional occurrences on clay soils in the north and south of the Plain. Of no economic importance. NSW.
- \**Setaria geniculata* (Lamk.) Beauv. var. *pauciseta* Desv.: "Bent Pigeon Grass". Not common. Occurs mainly on or near land which has been irrigated. Appears to be of very little value for stock. Den, NSW.

CYPERACEAE

- Carex bichenoviana* Boott: Recorded from near Hillston in the north-east and Barooga in the south; possibly widespread but overlooked elsewhere. NSW.
- C. tereticaulis* F. Muell.: Collections have come from the Mathoura and Wakool districts in the south; this species resembles the widespread *C. appressa* and may be more common than is apparent. NSW.
- Fimbristylis aestivalis* (Retz.) Vahl: "Summer Fringe-rush". Infrequently collected in the extreme south, near Moama. An inconspicuous plant of no economic value. Den.
- Schoenms apogon* Roem. & Schult.: "Common Bog-rush". Recorded from "The Rocks", between Toomwal and Berrigan; restricted there to localized damp areas. Den, NSW.
- Scirpus*† *australiensis* (Maiden & Betche) S. T. Blake: An inconspicuous plant collected near Narrandera; possibly occurs in low-lying areas in many other localities. Den.
- S. congruus* (Nees) S. T. Blake: One collection from a damp situation near Deniliquin; possibly widespread in similar habitats. Den.

† Wilson in this issue of *Telopea*—p. 153—presents a revised classification of the Australian species formerly referred to *Scirpus* sens. lat.

- S. fluviatilis* (Torrey) A. Gray: "Marsh Club-rush". Occasional occurrences along the Murray and Edward Rivers. Den.
- S. hookeranus* (Boeck.) S. T. Blake: Recorded from several localities in southern districts, invariably in damp situations. Den.
- \**S. hystrix* Thunb.: "Awned Club-rush". Collected only from a damp area at "The Rocks", between Tocumwal and Berrigan. Den.

## HYDATELLACEAE

*Trithuria* Hook.

- T. submersa* Hook. f.: One record for the area, from "near the Edward River" in 1875. Possibly overlooked in more recent times because of its small size. NSW.

## ERIOCAULACEAE

*Eriocaulon* L.

- E. australasicum* (F. Muell.) Körn: "Pipewort". Collected only in 1853, from "wet places along the Murray towards junction of Murrumbidgee" (Willis 1970). Without more precise locality details it is impossible to determine if the plant should rightfully be included in this list. In any case it has not been recorded since in Victoria or New South Wales. MEL.

## PONTEDERIACEAE

*Eichhornia* Kunth

- \**E. crassipes* (Mart.) Solms: "Water Hyacinth". Occasional occurrences have been recorded in waterways in southern districts. Den, NSW.

## JUNCACEAE

- \**Juncus articulatus* L.: "Jointed Rush". Scattered occurrences in the Deniliquin and Griffith areas. Den.
- \**J. capitatus* Weigel: "Capitate Rush". Only collection from damp site at "The Rocks", between Tocumwal and Berrigan. Den.
- J. holoschoenus* R. Br.: "Jointed-leaf Rush". In damp situations through southern districts. Den, NSW.
- J. pallidus* R. Br.: "Pale Rush". Recorded only from the Coleambally district. NSW.
- J. radula* Buchen.: "Hoary Rush". Several occurrences in southern districts. NSW.
- J.* sp. "O": Recorded only from areas adjacent to the Murray River. NSW.

## LILIACEAE

- \**Asparagus asparagoides* (L.) W. F. Wight: "Smilax Asparagus". Naturalized in several localities in southern districts. Den, NSW.

## XANTHORRHOACEAE

- Lomandra filiformis* (Thunb.) Britten ssp. *coriacea* A. T. Lee: "Wattle Mat-rush". One record only, from the Deniliquin district. NSW.

## ALLIACEAE†

*Allium* L.

- \**A. triquetrum* L.: "Three-cornered Garlic". Known only from a small colony of plants in a river red gum forest near Mathoura. Den.

† *Allium* and *Nothoscordum* have previously been included in the Amaryllidaceae.

*Nothoscordum* Kunth

- \**N. inodorum* (Ait.) Nicholson: "Fragrant False-garlic". Scattered patches of few plants in the Deniliquin-Mathoura district. Den, NSW.

## IRIDACEAE

*Gynandriris* Parl.

- \**G. setifolia* (L. f.) R. C. Foster: "Thread Iris". Common in occasional years in the Deniliquin-Moama-Tocumwal district. Den, NSW.

*Homeria* Vent.

- \**H. flaccida* Sweet: "One-leaf Cape Tulip". Infrequently recorded in the Deniliquin and Hillston areas. Den, NSW.

- \**Romulea flava* (Lam.) De Vos: Known only from a small colony of plants between Deniliquin and Mathoura. Den, NSW.

## ORCHIDACEAE

*Caladenia carnea* R. Br.: "Pink Fingers". Recorded occasionally on sandy and clay-loam soils in the extreme south; never abundant. Den.

*Prasophyllum* R. Br.

*P. fuscum* R. Br.: "Tawny Leek Orchid". Recorded from "Zara", Wanganella, early this century; not observed in recent times. NSW.

*P. patens* R. Br.: "Broad-lip Orchid". As for *P. fuscum*.

*Pterostylis* R. Br.

*P. mutica* R. Br.: "Midget Greenhood". Recorded only from a sandhill in the Gulpa Forest, near Mathoura, and very rare there. Den, NSW.

## DICOTYLEDONEAE

## URTICACEAE

*Urtica incisa* Poir.: "Scrub Nettle". A weed of sheep yards and waste places. Occasional occurrences in southern districts. Den, NSW.

## PROTEACEAE

*Banksia marginata* Cav.: Rare occurrences of isolated very old plants have been recorded on sandhills in river red gum forest country near Mathoura and Tocumwal. Den.

## SANTALACEAE

*Exocarpos cupressiformis* Labill.: "Native Cherry". Sparsely distributed through river red gum forests bordering the Murray River. Den.

## POLYGONACEAE

*Polygonum orientale* L.: "Prince's Plume". Occurs in depressions and along the banks of the Forest Creek near Wanganella, occasionally in small dense colonies. Apparently unpalatable. Den, NSW.

- \**Rumex pulcher* L.: "Fiddle Dock". Recorded from roadsides in southern districts; probably widespread, though not common. Den, NSW.

## CHENOPODIACEAE

*Atriplex semibaccata* R. Br.: "Creeping Saltbush". Common and widespread on a variety of soils. Only moderately palatable, but a useful source of forage. Den, NSW.



- \**Chenopodium ambrosioides* L.: "Mexican Tea". Sparse occurrences adjacent to the Murray River. Den.
- C. melanocarpum* (J. M. Black) J. M. Black: "Black Crumbweed". Recorded from the Booligal district. CANB.
- \**C. multifidum* L.: "Scented Goosefoot". Two collections only, from the Hay cemetery and from a roadside approximately 10 km north of Moama. Den, NSW.
- C. trigonum* Roem. & Schult.: "Lax Goosefoot". Recorded only from a saline sandy soil near Wakool. Den.

*Dysphania* R. Br.

- D. littoralis* R. Br.: "Red Crumbweed". Sometimes locally common in moist low-lying areas, particularly in river red gum woodlands. Den.
- Rhagodia hastata* R. Br.: "Saloop". Occasional plants in extreme southern districts. Den.

*Sclerolaena* R. Br.

- S. decurrens* (J. M. Black) A. J. Scott (formerly *Bassia decurrens* J. M. Black): Quite common on sands and loams to the west of the Riverine Plain, extending into the Plain only occasionally. Den.
- S. parallelispis* (R. H. Anderson) A. J. Scott (formerly *Bassia parallelispis* R. H. Anderson): Relatively common in the north-west of New South Wales, but occurring infrequently on the Riverine Plain. CANB.

*Threlkeldia* R. Br.

- T. salsuginosa* F. Muell.: "Bonefruit". Recorded from near Booligal. CANB.

AIZOACEAE

- \**Mesembryanthemum nodiflorum* L.: "Small Ice-plant". Only known occurrence 20 km north of Moama. Den.

PORTULACACEAE

- \**Calandrinia menziesii* (Hook.) Torrey & A. Gray: "Purple Purslane". Recorded from the "Deniliquin district" in 1920. NSW.

CARYOPHYLLACEAE

*Moenchia* Ehrhart

- \**M. erecta* (L.) Gaertn., B. Meyer & Scherb.: "Erect Chickweed". Recorded only from a damp habitat at "The Rocks", between Tocumwal and Berrigan. Den.

*Polycarpon* sp.: Apparently undescribed. Occurs in damp habitats, often on drying mud, in several localities in southern districts. Den.

*Spergula* L.

- \**S. pentandra* L.: Rare roadside plant recorded on sandy loam soil near Barmah. Den.
- \**Spergularia diandra* (Guss.) Boiss.: "Small Sand Spurry". Recorded only from near Booligal, but its similarity to the widespread and common *S. rubra* has probably led to its being overlooked elsewhere. CANB, NSW.
- Stellaria* sp.: An undescribed species close to *S. pungens* Brongn. Locally common in damp situations in southern districts. Den.

RANUNCULACEAE

- \**Ranunculus sceleratus* L.: "Celery Buttercup". Occasional occurrences in scattered localities; usually found in damp places. Den, NSW.



## PAPAVERACEAE

*Argemone* L.

- \**A. ochroleuca* Sweet ssp. *ochroleuca*: "Mexican Poppy". Infrequently recorded in the Deniliquin-Tocumwal district. Den, NSW.
- \**Papaver somniferum* L. ssp. *setigerum* (DC.) Thell.: "Opium Poppy". Occasional infestations along roadsides and in waste areas in southern districts. Den, NSW.

## FUMARIACEAE

- \**Fumaria capreolata* L. ssp. *capreolata*: "White-flowered Fumitory". Recorded from near Mathoura and from waste areas near habitation in several other localities. Den.
- \**F. muralis* Sond. ex Koch ssp. *muralis*: "Wall Fumitory". Recorded only from the Griffith area. NSW.

## BRASSICACEAE

- Arabidella eremigena* (F. Muell.) E. Shaw: Collected from a low-lying site in a river red gum forest near Deniliquin; not observed elsewhere. Den.
- \**Brassica juncea* (L.) Czernjaew: "Chinese Mustard". An occasional plant of roadsides in southern districts; appears only during wet winters. Den, NSW.
- \**B. rapa* L. ssp. *sylvestris* (L.) Janchen: "Bird Rape". Scattered plants occur along roadsides and in waste places during wet years. Den.

*Pachymitus* O. E. Schulz

- P. cardaminoides* (F. Muell.) O. E. Schulz: "Sand Cress". Recorded from "Zara", Wanganella, in 1903. Probably occurs in the area still, but overlooked. NSW.
- Rorippa eustylis* (F. Muell.) L. A. S. Johnson: "River Cress". Recorded from a swampy area on a river flat near Deniliquin and no doubt occurs in similar habitats elsewhere. Den.
- R. islandica* (Oeder) Borbas: "Marsh Watercress". Occurs in swampy situations along many streams, sometimes in small dense stands. Does not appear to be palatable to stock. Den, NSW.

*Sinapis* L.

- \**Sinapis alba* L.: "White Mustard". Roadside plant in southern areas in wet years. Den.
- \**Sisymbrium officinale* (L.) Scop.: "Indian Hedge Mustard." An infrequent weed associated with irrigation areas in southern districts. Den, NSW.

## DROSERACEAE

*Drosera* L.

- D. glanduligera* Lehm.: "Scarlet Sundew". Small colonies recorded on sandhills in Gulpa Forest near Mathoura, and on shallow-gravelly soil at "The Rocks", between Tocumwal and Berrigan. Den, NSW.
- D. peltata* Sm. ex Willd.: "Pale Sundew". Occurs in similar habitats and localities to those of *D. glanduligera*. Den, NSW.

## ROSACEAE

*Acaena* L.

- A. novae-zelandiae* Kirk (*A. anserinifolia* (Forst. & Forst. f.) Druce misappl.): "Bidgee-widgee". Fairly common in some localities within river red gum forests bordering the Murray River. Den.

- \**Rosa rubiginosa* L.: "Sweet Briar". Scattered plants along roadsides and channel banks. Den, NSW.

## MIMOSACEAE

- Acacia baileyana* F. Muell.: "Cootamundra Wattle". Recorded in the Berrigan-Barooga district, where considerable natural regeneration has occurred from seed of planted specimens; not native to the area. Den.
- A. deanei* (R. T. Bak.) Welch, Coombs & McGlynn ssp. *deanei*: "Deane's Wattle". A common component of white cypress pine communities on sandhills near Coleambally; also recorded in the Tocumwal-Barooga district. Den, NSW.
- A. implexa* Benth.: "Hickory Wattle". Scattered through river red gum forests bordering the Murray River. Den, NSW.
- A. longifolia* (Andr.) Willd.: "Sydney Golden Wattle". Only one specimen recorded, in a river red gum community on a river flat near Deniliquin; not native to the area. Den.
- A. rigens* A. Cunn. ex G. Don: "Needle Wattle". Occasional groups or scattered individuals on sandy rises and loam soils in the Burraboi-Barham-Thule district. Den.
- \**Prosopis glandulosa* Torrey: "Honey Mesquite". Sporadic occurrences recorded in the Barham-Deniliquin area. NSW.

## CAESALPINIACEAE

- Cassia phyllodinea* R. Br.: "Woody Cassia". One isolated record from a red-brown clay loam between Ivanhoe and Hillston. Den.

## FABACEAE

*Bossiaea* Vent.

- B. buxifolia* A. Cunn.: "Matted Bossiaea". A small population occurs on gravelly loam soil in a seldom-grazed area between Tocumwal and Barooga. Den.

*Cytisus* L.

- \**C. prolifer* L. f. (formerly known as *Chamaecytisus prolifer* (L. f.) Link): "Tree Lucerne". Occasional plants naturalized in favourable sites near areas of habitation in southern districts. Den.

*Daviesia* Sm.

- D. mimosoides* R. Br.: "Leafy Bitter-pea". One specimen only, with *Acacia* spp. along fenced-off roadway between Berrigan and Barooga. Probably the sole remaining representative of a larger population as all surrounding land has been cleared and sown to crops or pastures. Den.

*Dillwynia* Sm.

- D. sericea* A. Cunn.: "Showy Parrot-pea". Widely distributed in southern districts, in habitats ranging from heavy clay soils of river banks and flats, to well-drained gravelly loams. Usually as scattered individuals or in small colonies. Den, NSW.

- Eutaxia microphylla* (R. Br.) J. M. Black var. *diffusa* (F. Muell.) Court: Scattered throughout southern districts, mainly on loam soils. Den.

- Glycine tabacina* (Labill.) Benth.: "Variable Glycine". Occasional plants in lightly grazed or protected areas of black box and river red gum communities in the south. Den, NSW.

- \**Lotus corniculatus* L.: "Bird's-foot Trefoil". Recorded from a river flat near Stevens Weir, west of Deniliquin. Numerous plants observed within this localised area. Den.

\**Medicago sativa* L.: "Lucerne". Widely sown as a fodder plant and now naturalized in numerous situations, particularly along roadsides and in other sites receiving run-off water. Den.

\**Melilotus alba* Medik.: "Bokhara Clover". Infrequent on roadsides and river flats. Den.

*Pultenaea* Sm.

*P. largiflorens* F. Muell. ex Benth.: "Twiggy Bush-pea". Restricted to a small colony of plants near Moama. Den.

*Robinia* L.

\**R. pseudoacacia* L.: "Black Locust". Occasional occurrences in southern districts, invariably adjacent to sites of old homesteads. Regeneration, either from root suckers or from seed, is not uncommon. Den, NSW.

*Genista* L.

(Syn. *Teline* Medik.)

\**G. linifolia* L.: "Flax-leaf Broom". Restricted to a small clump of plants in a protected area between Berrigan and Barooga. Den, NSW.

\**G. monspessulana* (L.) L. A. S. Johnson: "Cape Broom". Scattered plants occur along roadsides and railway tracks and in waste places. Said to be palatable to stock. Den, NSW.

\**Trifolium striatum* L.: "Knotted Clover". Collected on loam soils in the Moama district and abundant there in good years. Readily eaten by stock. Den, NSW.

\**Vicia hirsuta* (L.) S. F. Gray: "Hairy Vetch". Sporadic occurrences in southern districts, mainly in or near river red gum forests. Den.

\**V. monantha* Retz. ssp. *triflora* (Ten.) Burt & Lewis: "Spurred Vetch". Moderately common in good years in southern river red gum forests. Palatable. Den.

\**V. sativa* L.: "Common Vetch". In addition to ssp. *sativa*, intergrades between ssp. *sativa* and ssp. *angustifolia* (L.) Gaudich. also occur in river red gum forests in the south. Den, NSW.

GERANIACEAE

\**Erodium brachycarpum* (Godron) Thell.: One record only, from a red-brown sandy soil between Deniliquin and Conargo. Not unlike *E. botrys* and possibly confused with that species elsewhere. NSW.

LINACEAE

\**Linum usitatissimum* L.: "Linseed". Occasionally appears on roadsides and in waste places. Den, NSW.

SIMAROUBACEAE

*Ailanthus* Desf.

\**A. altissima* (Miller) Swingle: "Trec-of-heaven". Recorded from waste areas in the town of Deniliquin, where early plantings have spread, presumably from root suckers, and formed small colonies. Den.

MELIACEAE

*Melia* L.

*M. azederach* L. var. *australasica* (A. Juss.) C.DC.: "White Cedar". Occasional plants, established from seed disposed of in garden rubbish, occur along roadsides, in rubbish dumps and around areas in which the tree has been planted for shade; not native to the area. Den.



## EUPHORBIACEAE

*Chrozophora* Neck.

- \**C. tinctoria* (L.) Juss. f.: "Dyer's Litmus Plant". Restricted to an infestation on road shoulders and in cropland near Darlington Point. NSW.

*Euphorbia planiticola* Hassall: "Plains Spurge". Resembles *E. eremophila* and previously included under that name. Recorded from the Deniliquin and Hay districts. NSW.

## ANACARDIACEAE

*Schinus* L.

- \**S. areira* L.: "Pepper Tree." A tree widely planted in earlier times around homesteads and sheds, now spontaneous in favourable sites along roadsides and in waste places; usually found as scattered individuals, rarely in small groups. Den.

## MALVACEAE

*Hibiscus heterophyllus* Vent.: "Rosella". One record, from a river red gum community on clay soil in the Oxley district; not native to the area. NSW.

*Sida rhombifolia* L.: "Paddy's Lucerne". Recorded from a loam soil in a yellow box woodland 15 km north-east of Deniliquin; also collected near Barmah, on the Murray River; not native to the area. Den.

*Sida subspicata* F. Muell. ex Benth.: "Spiked Sida". One record only from a white cypress pine and bull oak community on a sandy rise approximately 20 km north-east of Deniliquin. Den, NSW.

## DILLENIACEAE

*Hibbertia* Andr.

- H. obtusifolia* DC.: "Hoary Guinea-flower". Restricted to a small colony of plants on gravelly loam soil in a seldom grazed area between Tocumwal and Barooga. Den.

## ELATINACEAE

*Bergia* L.

- B. trimera* Fisch. & C. A. Meyer: "Small Water-fire". Small populations of plants recorded from near Booligal and from a grey clay soil at the Black Swamp, between Wanganella and Boooroban. Den.

## THYMELAEACEAE

*Pimelea curviflora* F. Muell. ex Meisn.: "Curved Rice-flower". Found in several localities in southern districts, usually as scattered plants or in small groups. Den.

*P. stricta* Meisn.: "Gaunt Rice-flower." A few plants recorded from a murray cypress pine woodland on a red-brown sandy loam between Berrigan and Barooga. Den, NSW.

## MYRTACEAE

*Callistemon paludosus* (Schltdl.) F. Muell.: "River Bottlebrush". Only one plant recorded, from the bank of the Murray River between Moama and Barham. Den.

*Eucalyptus blakelyi* Maiden—*E. dwyeri* Maiden & Blakely intergrade: Occurs in the extreme south-east, in the Berrigan-Barooga-Tocumwal district. Den, NSW.

## APIACEAE

*Ammi* L.

- \**A. majus* L.: "Bishop's Weed". Recorded only from waste areas near Griffith. NSW.

*Apium* L.

- \**A. leptophyllum* (Pers.) F. Muell.: "Slender Celery". Occasional occurrences recorded in the Hillston and Trida districts. NSW.

## PLUMBAGINACEAE

*Limonium* Miller

- \**L. sinuatum* (L.) Miller: "Perennial Sea-lavender". Scattered occurrences in waste places and along roadsides. Den, NSW.

## GENTIANACEAE

*Cicendia* Adans.

- \**C. quadrangularis* (Lamk.) Griseb.: "Square Cicendia". Restricted to a small colony of plants at "The Rocks", between Tocumwal and Berrigan. Den, NSW.

*Sebaea* Soland. ex R. Br.

- S. ovata* (Labill.) R. Br.: "Yellow Centaury". Several plants observed on shallow gravelly soil at "The Rocks", between Tocumwal and Berrigan. Den, NSW.

## ASCLEPIADACEAE

*Gomphocarpus* R. Br.

- \**G. fruticosus* (L.) R. Br.: "Swan Plant". Occasional plants recorded from roadsides and waste places in southern districts. Den, NSW.

## CONVOLVULACEAE

*Calystegia* R. Br.

- C. sepium* (L.) R. Br.: "Large Bindweed". Found in two locations along the Murray River, occurring as isolated plants or in small colonies. Den.

*Cuscuta* L.

- \**C. campestris* Yuncker: "Dodder". Scattered infestations along the Murray River, parasitic on hosts such as *Xanthium occidentale* and *Polygonum prostratum*. Den.

## BORAGINACEAE

- Heliotropium curassavicum* L.: "Smooth Heliotrope". Recorded from the Black Swamp (between Wanganella and Booroorban) and from "The Rocks" (between Tocumwal and Berrigan) but not common in either locality. Den.

## LAMIACEAE

*Lamium* L.

- \**L. amplexicaule* L.: "Dead-nettle". Scattered occurrences recorded near Deniliquin and Hay in years of good cool-season rainfall; not abundant in either locality. Den.

- \**Salvia reflexa* Hornem.: "Mintweed". Recorded in the Deniliquin district and rare there. Den, NSW.

*Stachys* L.

- \**S. arvensis* (L.) L.: "Stagger Weed". Found in small colonies in black box woodlands near Deniliquin and Barmah. Den.

*Teucrium racemosum* R. Br. var. *polymorphum* Tovey & Morris: Recorded from the Hay, Wanganella and Jerilderie districts. Very similar to var. *racemosum* and probably confused with that variety on many occasions. NSW.

Var. *tripartitum* F. Mucll.: Small colonies recorded in the Hay and Kyalite districts but nowhere abundant. Den, NSW.

#### SOLANACEAE

*Solanum opacum* A. Br. & Bouché: Recorded from the Hay and Griffith areas. Probably confused with *S. nigrum* in the past and likely to be more common than is at present indicated. NSW.

\**S. pseudocapsicum* L.: "Madeira Winter Cherry". Scattered plants in several southern localities, usually on river flats or in waste areas. Den, NSW.

\**S. hermannii* Dunal (*S. sodomeum* auct. non L.): "Apple of Sodom". Two records only, from trucking yards at Deniliquin and from the Tuppall area, near the Murray River, both occurrences restricted to only a few plants. Den.

#### SCROPHULARIACEAE

*Glossostigma* Wight & Arn. ex Arn.

*G. diandrum* (L.) Kuntze (Syn. *G. spathulatum* Arn.): Recorded from the Booligal district. Distribution uncertain due to similarity to *Glossostigma* sp. below. CANB.

*G.* sp.: Common in mud and shallow water in numerous localities in southern districts (at least). Den.

*Gratiola pubescens* R. Br.: Recorded from damp situations in southern areas. Perhaps confused with *G. pedunculata* and distribution therefore uncertain. Den, NSW.

*Morgania glabra* R. Br.: "Smooth Blue-rod". Occurs on clay soils in southern districts and may be relatively common in some years. Apparently unpalatable. Den.

*Peplidium* Delile

*P. maritimum* (L. f.) Wettst.: "Dwarf Peplidium". One record only, from the Booligal district. CANB.

\**Veronica catenata* Pennell: "Pink Water Speedwell". Collected from a swamp near Booligal. CANB.

*V. plebeia* R. Br.: "Creeping Speedwell". Numerous plants under cypress pine on a red-brown sandy loam between Berrigan and Barooga. Apparently unpalatable to stock. Den.

#### MARTYNIACEAE

*Ibicella* (Stapf) Eseltine

\**I. lutea* (Lindl.) Eseltine: "Yellow-flowered Devil's-claw". Generally rare, occurring as isolated plants or in small groups in occasional years. Den, NSW.

#### PLANTAGINACEAE

*Plantago debilis* R. Br.: Recorded from the Hay district in 1938. Although not collected in the Riverine Plain in recent times this is possibly because it has been confused with other *Plantago* species. NSW.

*P. gaudichaudii* Barnéoud: "Narrow-leaf Plantain." Positive records of this species have come from the Hay and Wanganella districts in 1903 and 1915 respectively. That it has not been collected more recently probably indicates confusion with similar *Plantago* species. NSW.



*P. varia* R. Br.: "Variable Plantain". The true *P. varia* has been recorded, for the Riverine Plain, only from the Hay district in 1903. Several species of *Plantago* are superficially similar to it and have undoubtedly been confused with it in the past. NSW.

## RUBIACEAE

\**Galium murale* (L.) All.: "Small Bedstraw". Known only from localized occurrences in river red gum forests in the Deniliquin-Mathoura area. Den, NSW.

## LOBELIACEAE (prev. under CAMPANULACEAE)

*Isotoma* (R. Br.) Lindl.

*I. fluviatilis* (R. Br.) F. Muell. ex Benth.: "Swamp Isotome". Recorded only from a seasonally wet site at "The Rocks", between Tocumwal and Berrigan. Den, NSW.

## STYLIDIACEAE

*Levenhookia* R. Br.

*L. dubia* Sond.: "Hairy Stylewort". Inconspicuous ephemeral collected from several locations in southern districts; occurs in small localized colonies and is more prevalent in wetter years. Den, NSW.

## ASTERACEAE

*Arctium* L.

\**A. minus* (Hills) Bernh.: "Common Burdock". One record, from near Moulamein; usually a weed of habitation. NSW.

*Artemisia* L.

\**A. arborescens* L.: "Silver Wormwood". Used as a hedge plant around early homesteads; occasional plants occur along roadsides and in waste places, material presumably having been dumped there in garden rubbish. Den.

*Bidens* L.

\**B. subalternans* DC.: Restricted to small patches of plants in the Deniliquin-Mathoura-Tocumwal district, usually in sites receiving run-on water. Den.

*Brachycome readeri* G. L. Davis: Recorded only in a restricted area between Deniliquin and Tocumwal, although further collections might reveal a wider distribution. Found on a red-brown clay in open black box woodlands. Den, NSW.

*Calendula* L.

\**C. palaestina* Boiss.: One record, from "Zara" Station, near Wanganella, in 1918. NSW.

*Calotis anthemoides* F. Muell.: "Cut-leaf Burr-daisy". Common in the Tuppal area, usually in low-lying situations on red-brown clays. Den, NSW.

*C. lappulacea* Benth.: "Yellow Burr-daisy". An uncommon plant recorded from a few scattered localities. Den, NSW.

*Centipeda minima* (L.) A. Br. & Aschers. var. *minima*: "Spreading Sneezeweed". Common in damp situations on river flats and banks. Not grazed. Den, NSW.

Var. *lanuginosa* (DC.) Domin: As for var. *minima*. Den, NSW.

*Clrysanthemoides* Medik.

\**C. monillifera* L.: "Boneseed". A garden escape which has become naturalized near Tullakool and near Pretty Pine. Den.

*Chthonocephalus* Steetz

- C. pseudevax* Steetz: "Ground-heads". Only known populations occur on sandhills within river red gum forests between Deniliquin and Mathoura; uncommon there and probably present only in the better years. Den.

*Cynara* L.

- \**C. cardunculus* L.: "Artichoke Thistle". A rare weed, with isolated records from intensely cultivated areas in the Murrumbidgee Irrigation Areas and in the vicinity of Balranald and Deniliquin. NSW.

*Gnaphalium indutum* Hook. f.: "Tiny Cudweed". Recorded only from a small colony in a damp area at "The Rocks", between Tocumwal and Berrigan. Den.

*Helipterum praecox* F. Muell.: Recorded only from the Finley-Jerilderie area in 1920 and 1926. NSW.

*H. stuartianum* Sond. & F. Muell. ex Sond.: One positive record, from the Moulamein district; possibly occurs elsewhere but its resemblance to the widespread and common *H. floribundum* may have led to confusion with that species. NSW.

*Leontodon* L.

- \**L. taraxacoides* (Vill.) Méral: "Lesser Hawkbit". Quite frequent on river flats and banks in southern districts; not observed to be grazed. Den, NSW.

*Leptorhynchus* sp.: Apparently undescribed. Collections from near Hillston and from the Deniliquin district. NSW.

- \**Onopordum acanthium* L.: "Scotch Thistle". Infrequent occurrences on roadsides and in waste place in southern districts. Den, NSW.

*Reichardia* Roth

- \**R. tingitana* (L.) Roth: Occurs infrequently on river flats and roadsides in southern and western parts. Den.

*Senecio hispidulus* A. Rich. var. *dissectus* (Benth.) Belcher: "Hill Fireweed". Recorded from scattered localities in southern and eastern districts; usually restricted to small colonies of plants. Den, NSW.

*S. linearifolius* A. Rich: "Fireweed Groundsel". Occasional occurrences in damp areas in the vicinity of streams or swamps. NSW.

*Sigesbeckia* L.

- S. orientalis* L.: "Indian Weed". A locally common weed of river red gum forests bordering the Murray River. Den, NSW.

*Solenogyne* Cass.

*S. bellioides* Cass.: Quite common in localized areas in black box woodlands in southern districts. Den, NSW.

*S. dominii* L. G. Adams: Occurs in similar situations to *S. bellioides*; the two species may sometimes occur as mixed populations. Den, NSW.

*Tragopogon* L.

- \**T. porrifolius* L.: "Salsify". A common plant of roadsides and waste places in the Griffith district; elsewhere restricted to small and isolated occurrences. Den, NSW.

*Vittadinia pterochaeta* (F. Muell. ex Benth.) J. M. Black: Recorded only from near Trida, in the north of the Plain. NSW.

*V. tenuissima* (Benth.) J. M. Black: One collection only, from the Booligal district. NSW.

- \* *Xanthium ambrosioides* Hook. & Arn.: Recorded only from the Moulamein and Jerilderie districts; possibly widespread but confused with *X. spinosum*, which is superficially very similar. NSW.
- \* *X. orientale* L.: "Californian Burr." Known to occur in several localities in southern districts; possibly co-extensive with the similar *X. occidentale*. Den.

Manuscript received 15.12.1980.